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90/W/CS/339 Sulphur and Nitrogen - W. Oilseed Rape

Rothamsted Research

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90/W/CS/339

SULPHUR AND NITROGEN

Object: To study the effects of differing amounts of sulphur on rates of sulphur uptake and on the yield of w. oilseed rape and the extent to which responses are affected by amounts of nitrogen fertilizer - Woburn, Butt Close II.

Sponsor: S.P. McGrath.

The second year, w. oilseed rape.

For first year see 89/W/CS/339.

Design: 3 randomised blocks of 12 plots.

Whole plot dimensions: 4.0 x 10.0.

Treatments: All combinations of:-

1. S Rates of sulphur (kg S) as calcium sulphate cumulative to 1989 applications:

0
10
20
40

2. N Rates of nitrogen (kg N) as 'Nitro-Chalk' (27% N) cumulative to 1989 applications:

0
180
230

Basal applications: Weedkillers: Benazolin at 0.38 kg with clopyralid at 0.062 kg in 220 l. Insecticides: Deltamethrin at 6.2 g in 220 l. Triazophos at 0.42 kg applied with the fungicide. Fungicide: Iprodione at 0.50 kg in 300 l. Irrigation: 25 mm divided equally between two occasions.

Seed: Libravo, sown at 6.0 kg.

Cultivations, etc.:- Wheat straw removed: 24 Aug, 1989. Subsoiled, ploughed and rolled: 1 Sept. Rotary harrowed with crumbler attached, seed sown: 8 Sept. Rolled: 9 Sept. Irrigated: 28 Sept and 4 Oct. Weedkillers applied: 23 Feb, 1990. N and S applied: 9 March. Deltamethrin applied: 5 Apr. Iprodione and triazophos applied: 24 May. Combine harvested: 27 July.

90/W/CS/339

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

***** Tables of means *****

N	0	180	230	Mean
S				
0	0.16	0.35	0.29	0.27
10	0.19	0.37	0.76	0.44
20	0.14	0.19	0.39	0.24
40	0.17	0.29	0.43	0.30
Mean	0.16	0.30	0.47	0.31

*** Standard errors of differences of means ***

S	N	S
		N
0.083	0.072	0.143

***** Stratum standard errors and coefficients of variation *****

Stratum	d.f.	s.e.	cv%
BLOCK.WP	22	0.175	56.2

GRAIN MEAN DM% 78.1

STRAW (AT 90% DRY MATTER) TONNES/HECTARE

***** Tables of means *****

N	0	180	230	Mean
S				
0	0.55	1.54	1.05	1.04
10	0.50	1.51	2.31	1.44
20	0.56	1.01	1.33	0.97
40	0.33	1.67	1.28	1.09
Mean	0.49	1.43	1.49	1.14

STRAW MEAN DM% 80.4

PLOT AREA HARVESTED 0.00120